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SHARING THE AIR WITH MILITARY JETS

Civilian pilots will be afforded greater protection in 1978 from an undesirable mixture of traffic with military aircraft, thanks to a new agreement that has recently been worked out between FAA and the Department of Defense.

The general aviation fleet is expected to number 195,000 aircraft by 1981. Most of these aircraft operate below 10,000 feet MSL (mean sea level), where the airspeed limit is 250 knots. However, altitudes below 10,000 feet are also required by the military air services for certain essential training operations which must be conducted at speeds in excess of 250 knots, and this presents a problem.

To be proficient, the military services must train in a wide range of airborne tactics at altitudes frequented by general aviation aircraft flying VFR. The required maneuvers and high speeds of the military planes are such that they may occasionally make the see-and-avoid aspect of VFR flight more difficult without increased vigilance in areas containing such operations. Aircraft intercept, air-to-air combat, ground troop support, low altitude activity, and photo reconnaissance are some of the procedures that must be rehearsed in this segment of the airspace to point of complete readiness.

Additionally, the full range of military flight training, from student preparation to professional airman status, must be carried out. To some extent this is accomplished within restricted or designated airspace, clearly identified on sectional charts. However, certain types of training missions must be carried out on flights which extend well beyond the range of restricted areas.

To accommodate the national defense requirements, FAA issued a waiver in 1967 to the Department of Defense which allowed DOD to authorize various training activities below 10,000 feet MSL at speeds in excess of 250 knots. DOD at that time developed two types of training routes:

1. **TR routes.** Used for VFR operations only, 1,500 feet AGL and below. Some 273 of these routes are current. They have been published only on the military DOD FLIP AP 1B chart, which has become known as the "Green Demon" chart. (See "Green Demons and Grey Phantoms," and "Respecting Military Airspace," in the February and March 1977 issues of FAA GENERAL AVIATION NEWS.)
2. **OB (Olive Branch) routes.** Flown both VFR and IFR between 6,000 feet MSL and 1,500 feet AGL. About 23 routes have been in use, published only on the "FLIP" charts and in the Airman's Information Manual (Part 4).

Information regarding these military missions was relayed to the nearest flight service station at least 30 minutes prior to departure whenever possible. However, many military missions were unsuited for the TR routes and were conducted on a random basis. Information on these flights was not available from any chart nor from flight service stations.

The result has been a mix of civilian and military traffic which has some undesirable aspects. Camouflage paint, used by many military aircraft to avoid detection, makes it difficult for civilian pilots to see them in time. At the same time, high closure speeds, and intense workloads on the military pilots, reduce their ability to see and avoid other aircraft. FAA's Accident Investigation Staff has recorded an average of about 100 military-civilian near mid-air collisions per year, as well as some fatal collisions. To improve this situation FAA has concluded a new agreement with DOD which authorizes military aircraft to operate in excess of 250 knots below 10,000 feet MSL *under following circumstances only:*

1. Within restricted areas and military operations areas (MOA).

Camouflage can make a fast-moving military jet such as the Air Force F-111 extremely hard to see—especially for the pilot who has not learned in advance that such planes might be flying along his route.

2. Within a large scale exercise or short term mission which the nonparticipating flying public is made aware of.
3. Along new IFR-only routes to be developed by DOD.
4. Along a reduced number of VFR routes which will be developed by DOD only when required missions cannot be accommodated along IFR routes.
5. The responsible military scheduling unit will inform a key or "tie-in" flight service station, on a daily basis, of all military training flights scheduled for the airspace below 10,000 feet in their area, with particulars as to time of activity, type of mission, etc. So far as possible, all training will take place along published routes only. The key FSS will relay information to all other stations within 200 miles of the "hot" route segments.

Note: The new program went into effect as of January 1, 1978, but DOD has until May 18 of this year to accomplish full compliance.

The new military training route system, known as MTR, incorporates several significant changes in the route structure:

- MTR routes may utilize any portion of the airspace at 10,000 feet MSL and below, but the total number of routes will be reduced to the absolute minimum required for mission requirements.
- All of the "Olive Branch" routes will be phased into the MTR program during 1978, and replaced either by the new IR routes, or when necessary by a new structure of VFR routes (called VRs).
- During this transition period of 1978 both the old VFR routes (TRs) and the new VRs will be in existence. *Note carefully*: All military training routes will be shown on the FLIP charts, but only the newly established routes, both VRs and IRs, will appear on FAA/NOS charts—*as* these routes are established, *as* the appropriate means of depicting them is determined, and *as* the charts become due for re-issuance. The first FAA charts with military routes are not expected to appear before April of this year.

Unlike the old training routes, the new IR and VR routes will be made up of segments which vary in width and altitude according to their mission requirements. For example, a lengthy straight line approach segment may be only two or three miles wide, while a shorter segment containing a target may be 15 miles wide. Similarly, a route may use only the airspace between 1,000 and 1,500 feet along approach segments, but contain a target segment reaching up as high as 10,000 feet. This is intended to reduce the amount of airspace in which an undesirable mix of civilian and military traffic may occur.

Three basic types of missions will be flown along the new MTR system: *Photo Reconnaissance* (PR), *Road Reconnaissance* (RC), and *Strategic Navigation* (SN). The civilian pilot flying in the area of active routes may be interested in the nature of the mission, but most importantly he will want to know the altitude and width of the route segments in his vicinity, and the "hot" times.

All of this information will be available at the FSS, where the civilian pilot may study FLIP charts, sectionals, AIM, etc., and receive an update briefing (on request) on pertinent low altitude military activity. An MTR activity update will also be passed along to pilots in response to specific inflight queries. However, the FSS will *not* routinely provide this information to pilots who call in, unless it is specifically requested. For maximum safety, any pilot who does not have positive information to the contrary should consider all military routes along his flight path to be active.

Suppose, for example, a pilot in flight calls Washington FSS and says:

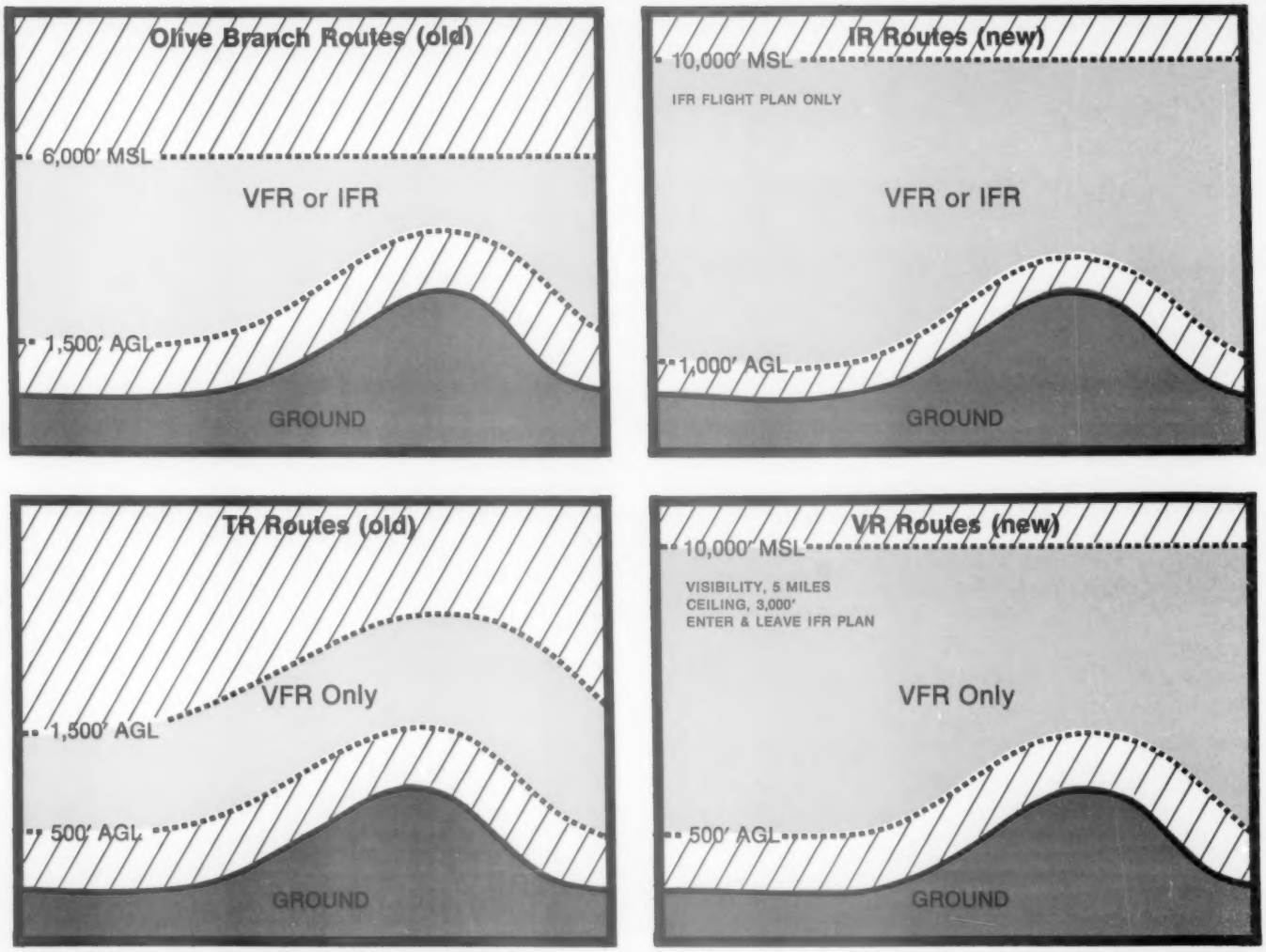
"This is Bonanza 2468 Juliet, leaving Richmond for Frederick, by way of Fredericksburg and Manassas. Any military activity along my route?"

The FSS reply will read something like this:

MILITARY TRAINING AREAS

The military training *routes* (which involve point-to-point missions) are distinct from military training *areas*, where random operations take place. Principal training areas, which are currently displayed on all sectional charts, consist of:

1. RESTRICTED AREAS. Unauthorized civilian penetration prohibited. Dangerous hazards to aircraft, such as artillery firing, aerial gunnery, guided missiles, etc.
2. WARNING AREAS. Penetration during active periods may be hazardous to aircraft. Located beyond three-mile coastline limit.
3. ALERT AREAS. All activity conducted in accordance with FAA regulations, no authorization to penetrate needed. Caution—high volume of military pilot training and similar activities.
4. MILITARY OPERATION AREAS (MOA). IFR civilian traffic provided separation or re-routing. No restriction on VFR traffic, but extreme vigilance urged. Combat maneuvers, air intercepts, aerobatics, etc., may be in progress.



The old "Olive Branch" (*upper left*) and TR (*lower left*) military training routes at low altitude operate within the airspace designated on the drawing. The new routes, known as IR's, (*upper right*) and VR's (*lower right*) will penetrate various altitudes below 10,000 feet MSL with varying widths. Military FLIP charts show new and old routes; sectionals will eventually show new routes.

"Roger, Bonanza 2468 Juliet. Caution India Romeo eight zero five hot fifteen thirty to sixteen hundred zulu, mission Sierra November. Also caution Victor Romeo eight two zero hot fifteen forty five to sixteen thirty zulu, mission Romeo Charlie Richmond altimeter three zero zero two."

The informed pilot will understand from this message that a Strategic Navigation mission will be flown on IR route 805 between 1530 and 1600 hours zulu, and that a Road Reconaissance mission may be expected along VR route 820 between 1545 and 1630 hours. Locating the training routes on his chart, he will learn that IR 805 segment confronting his flight path includes the airspace between 4,000 and 6,000 feet MSL, and that the nearby segment of VR 820 extends from 500 to 1,500 feet above the ground. The pilot may also note from the chart depiction that both of these routes are relatively narrow, only about three miles in width, in the segments of his concern. For this reason he can be fairly certain that the military planes using these routes will not be maneuvering acrobatically, if he should decide to fly through the route. On the other hand, if he wishes to be especially careful, he knows that choosing any altitude between 1,500 feet AGL and 4,000 feet MSL will keep him clear of military traffic along either route.

This same information may be heard on the live weather scheduled at 15 minutes past the hour on the VOR transcribed weather broadcast or on PATWAS (Pilot Automatic Telephone Weather Answering Service) where available. Information regarding a particular route will also be broadcast 30 minutes prior to and during any activity on the route.

During the 1978 transitional year of MTR, civilian pilots are urged to use all necessary sources of information to make certain they are correctly informed about military training flights in their area. Since the total amount of airspace given over to the low altitude training will be reduced in the new system, traffic along published routes is expected to increase. Incidentally, FLIP charts are available for study at most airports in public use. The DOD sends out 13,000 free copies annually to fixed base operators and airport managers.

The first FLIP charts containing new MTR routes were published on December 29, 1977. Publication of military routes in FAA civilian charts will be undertaken during the course of 1978, and pilots will be notified of their availability through this magazine and other publications.

Sharing the airspace intelligently is a matter of self-preservation. The sky above us will remain free only as long as we are willing to bear the burden of defending it.

NOTE: A free advisory circular, AC 210-5 contains further information on military flying activities. For a copy write to DOT, Publications Section, TAD 443.1, Washington, DC 20590.

DESOLATION VALLEY

"Short-swinging" over mountain passes can lead to oblivion

A Wilderness Area is defined as Federal land ". . . *where the earth and its community of life are untrammeled by man . . . retaining its primeval character and influence without permanent improvements or human inhabitation. . . .*" In setting up these areas, U.S. Forest Service leaders note that ". . . the *elemental simplicities of (historic) wilderness travel were thrills . . . because they represented complete freedom to make mistakes. The wilderness gave . . . those rewards and penalties for wise and foolish acts . . . against which civilization has built a thousand buffers.*"

One such designated Wilderness Area is *Desolation Valley*, located a few miles west of Lake Tahoe in northern California. Desolation is an elevated valley lying between glaciated High Sierra peaks ranging between 6,500 and 10,000 feet. There are many small lakes, some trails, no roads, no buildings, no shelters. A great place for backpackers to "lose themselves in nature" in August, but for the pilot of a lost and downed plane last winter, with his badly injured wife aboard, it seemed like the end of the world.

The first indication that an aircraft was missing near Tahoe came on Saturday morning, February 19 in the form of a telephone inquiry to the Lake Tahoe Air Traffic Control Tower, from the manager of the Sunrise Inn at Heavenly Valley ski resort near South Lake Tahoe. The manager stated that a room at his inn had been reserved for the previous night, February 18, and the following three days by a Walter Keaton and his wife from Visalia, Calif. The Keatons had not appeared to claim the room, nor had they cancelled, and since the inn manager knew they were flying up in their own plane he wanted to know whether the tower had any knowledge of their impending arrival.

The tower supervisor made a routine check of the airport, with negative results. He then suggested to the inn manager that he try contacting the Keatons at home in Visalia.

The manager said that he called several times, but no one was at home. He had even called the airport at Visalia, and had been told that Keaton had departed on the morning of February 18, and had not returned.

A call to the Fresno FSS confirmed that a Beech *Baron* 3890A, piloted by Walter Keaton, passenger Barbara Keaton, had departed Visalia at 0730 pst according to a VFR flight plan which was activated at 0735. Destination was Lake Tahoe Airport, ETA 0915. The flight plan had been canceled by telephone message to Sacramento from Cameron Airpark at 1015 on February 18.

The airpark at Cameron (approximately 60 n.m. west of Tahoe, and 25 miles east of Sacramento) was contacted, and it was learned that *Baron* 3890A had departed the airport at approximately 1310 pst February 18 for Tahoe. The pilot had discussed using Highway 50 as a visual reference guide all the way to Lake Tahoe Airport with local pilots, and had been cautioned that the summit point was

Lake Tahoe Airport is ringed closely by high mountains in all directions except for the over-lake approach from the north.

7,385 feet. MSL. He had indicated his intention of filing a flight plan from the air, but there was no record of any such filing. The pilot was not instrument rated. *Baron* 3890A was transponder equipped. Pilots arriving at Cameron from the Tahoe area that afternoon had reported low ceilings, with intermittent snow showers.

At 1213 on February 19, approximately 23 hours after the last known sighting of *Baron* 3890A, the Air Force Rescue Coordination Center was notified. After a telephone search of Placerville and all other possible landing points between Tahoe and Visalia the Rescue Center concluded that the aircraft was in fact lost. There was no report from aircraft overflying the area of any emergency signal having been picked up during the past 24 hours. The rescue team asked FAA's Oakland air traffic control center for ITAP assistance in locating the crash site.

Interim Track Analysis Program (ITAP) is a computer program (currently available in 15 of the 20 domestic air route traffic control centers) which can provide the last known position of an aircraft that has been observed on radar. The program converts radar data to a series of geographical coordinates for all aircraft within radar coverage. Aircraft are identified by establishing their position at a given time and plotting progressive changes in position.

Since the stored radar information is only retrieved in digital form, only a highly trained specialist is able to identify the movements of a specific aircraft. The more information he is given about the last known position of the aircraft, the sooner he is able to make a "connection" with the printout. ITAP does not, of course, locate the crash site, but only the point at which the target dis-

appeared from the radar screen—which in some terrain or weather conditions could be several thousand feet above the ground.

In the case of Beech *Baron* 3890A, the ITAP specialist was able to establish the track of an unknown aircraft between Cameron and Tahoe on the afternoon of February 18, beginning at 1320 pst. The aircraft maintained an east-northeasterly heading varying from 80° to 90° as far as Camp Sacramento (approximately 12 miles southwest of Lake Tahoe Airport) and then established a northerly heading for the next ten minutes. It last appeared on the radar at latitude 38 degrees 53 minutes north, longitude 120 degrees 10 minutes west.

The aircraft wreckage was located within a quarter of a mile of this point by an Air Force rescue helicopter at 1653 pst, on February 19. The remains of the aircraft were so thoroughly hidden by tall, snow-laden trees that it was virtually impossible to see the plane from the air, but the spotter's attention was caught by the sight of a man jumping up and down in the snow and waving frantically. It was the missing pilot, Walter Keaton. After the helicopter landed on a small ridge nearby, the pilot led paramedics to the airplane, which had broken into many pieces. The pilot's wife, badly injured and unconscious, was removed from the cabin by stretcher and flown to the Barton Memorial Hospital at Lake Tahoe.

Examination of the site. The accident site was visited on February 20 by means of a Forest Service helicopter. The wreckage was at approximately the 8,000 feet level on a slope of Pyramid Peak, one of a group of four high summits at the southern boundary of Desolation Valley, a designated Wilderness Area of 63,469 acres, maintained by the Forest Service. The area borders the southwestern tip of Lake Tahoe and lies just north of the American River. There are no roads or landing fields, and the terrain is heavily forested, with many sharp variations of terrain.

The aircraft had apparently penetrated a clump of pine trees at about a horizontal plane and subsequently impacted against the slope, which was covered with approximately two feet of soft snow. The track in the snow indicated the aircraft had skidded forward and to the right for a distance of 300 feet after the original impact. Numerous broken trees and large branches of trees were found along this track, together with fragments of the wings and tail assembly.

The wreckage. The main portion of the aircraft was in an inverted position, with the cabin badly damaged but essentially in one piece. The fuselage had broken aft of the cabin, and portions of it were found along the ground path. The propellers of both engines had

Details of the terrain south of Lake Tahoe. Echo Summit, only western pass under 10,000', leading west, has sudden weather changes.

Flying a twin engine aircraft single-handed in marginally VFR conditions over an unfamiliar snow-covered pass in the High Sierras can keep you busier than you would like to be.

separated at the shaft. The right wing spar was broken at a point approximately three feet from the tip. The left wing was punctured and torn in several places. It appeared that the forward progress of the aircraft along the ground had been arrested by impact with a stone ledge, which caused the plane to flip over to the right. The aircraft's ELT was found in the snow about 40 feet from the cabin. It was badly damaged and not functioning. There was no fire.

The aircraft. The Beech *Baron* was registered to Walter and Barbara Keaton as co-owners. It had been purchased by them as a used aircraft on September 12, 1975. The last annual inspection was completed on the previous December 15, and at that time a static pressure check was made of the altimeter. The log showed that all pertinent Airworthiness Directives had been complied with.

Crew information. Pilot Walter J. Keaton, age 30, held a private pilot certificate, with multi-engine land rating. He was not instrument rated. He had logged 573 hours, 21 of them in the *Baron*. He completed his biennial flight review on January 10.

The other person in the aircraft, Barbara Bailey Keaton, was not a certified pilot.

The weather. At approximately 0903 on February 18, an air traffic control specialist at the Stockton FSS was contacted by *Baron* 3890A, who reported over the airport and asked for Tahoe Airport weather. He was furnished with the following information:

1600 GMT weather report—1,500 scattered, estimated ceiling 2.500 overcast, visibility 20 miles, temperature 40, dewpoint 31, wind 230 degrees at 8 knots, altimeter 30.06, occasional breaks in the overcast, snow showers of varying intensity south.

The pilot stated that "It doesn't look so good for VFR." He was asked if he was instrument rated, and he replied in the negative. He then said he would ". . . go on up north a bit and check in with Sacramento."

This information was passed on to Sacramento FSS.

Witness Statement. Following is a written statement made by G.S. Holliver, a pilot who has an airplane based at Cameron, and who talked to the pilot of Beech *Baron* 3890A prior to his departure from that airport:

I first spoke to him when he and his wife came in from the field, about 0930 or 1000 in the morning. He wanted to find a telephone to call the FSS, and I showed him where. He said they were flying up to Tahoe for some skiing, and asked if I had heard anything about the weather up there. I said no, but I could see by looking out that the mountains up-country were all covered with clouds, and that wasn't a good sign.

Later, maybe about noon, I saw them both again in the coffee shop where I was eating, and they sat down next to me. This pilot, Keaton, he said the weather hadn't changed much, but there were some breaks in the overcast, and he thought they would take a look at it. I asked him if he had ever flown in there before and he said no, and I said I didn't recommend trying it with a low overcast the first time. His wife said they had reservations at the ski resort and had been planning the trip a long time—I think she said it was their anniversary. I told them they could rent a car in town and be up there in a couple of hours, and he said they would think about it.

Then he asked me about flying up to Tahoe over the highway (50). I said it was O.K., as long as you kept the road or the river in sight, but you didn't want to be too low because of the downdrafts and with that overcast you could get squeezed down. I told him he had to get over Echo Summit which was about 7,500 feet, and I myself wanted to go over a good thousand feet above it, so that

Snow retreats to the peaks as spring comes to Desolation Valley.

2,500 foot ceiling they were reporting at mile-high Tahoe wasn't much of a margin, because there was a lot of 10,000 feet high stuff around there with rocks in it. I showed him the sheet the Tahoe tower put out giving all the elevations around the field, and he was very interested in that.

I never saw him take off, but I understand he did, a couple of hours later. I did see him land, when he first came in, and he had to make three approaches before he got it down. That didn't look so good, but it's hard to say anything.

The pilot. Walter Keaton, pilot of *Baron* 3890A, was interviewed at Barton Hospital on February 20. He was not hospitalized at the time, although he had been treated for exposure and facial cuts. He was primarily concerned about the condition of his wife, who was still in intensive care, with severe internal injuries and a fractured pelvis. His recollection of the history of the flight is as follows:

They planned to fly up the valley from Visalia along Victor 23 as far as Stockton, and then follow Victor 28 into Tahoe. However, the weather report at Stockton indicated they would not be able to maintain VFR on the airway, so he continued up north as far as Cameron, where he landed about 0920, to wait out an improvement in the weather.

The weather at Tahoe did not improve substantially, so he cancelled his flight plan with Sacramento FSS and considered going on by rental car. But it seemed that they would lose at least the afternoon's skiing if they did so, and have to start back sooner. After talking to several local pilots he decided to fly up as far as he could safely over the highway. They departed at 1335.

He said that he intended to file a flight plan from the air, but after takeoff, with less than a 30 minute flight in front of him it seemed unnecessary. Occasionally he found the terrain obscured by clouds, so he was soon preoccupied with keeping on course and clear of clouds. He said they cleared Echo Summit without difficulty, but lost the highway shortly after turning north again, when he encountered a light snow shower. He continued north, following a stream which according to his map should have led him to the airport, but did not. Asked how he had identified Echo Summit, he replied "by time elapsed." He acknowledged that visibility in the area was "not too good," and that he might have mistakenly turned north before clearing the summit. At the time he thought he might have gone too far east, so he took up a westerly course and after a few minutes he saw a valley in which he believed the airport was situated. As he began to let down, however, he found himself in rising terrain. As he started to climb out he became disoriented in a sudden sharp snow shower, and he did not remember anything beyond this point until he discovered he was suspended in his harness upside down in the crashed airplane. He cut the switches and tried to extricate his wife, but he could see that she was too badly injured to move. (She had released her belt just before the crash, in order to look out the obscured windscreen better.) She was semi-conscious, and in great pain. He covered her with their skiing parkas, and comforted her as best he could.

His first concern was to get help as soon as possible, but when he managed to get out of the airplane he found himself in a dense woods with snow everywhere and an overcast sky. Without a compass he could not even guess where the airport or the road might lie. After floundering in the deep snow for half an hour he came up to a ridge, but from here he could only see other ridges and woods. Strong winds were blowing snow over his tracks, and he became fearful that he might not be able to find his way back to the plane, so he returned immediately.

It was not quite four o'clock, but in that desolate valley darkness was already approaching. He spent the next half hour frantically going through all the pockets in his and his wife's clothes in search of a match, but without success. The aircraft radio was dead, and the ELT looked hopeless, so he knew there was no chance of attracting help without a visual signal. And he had taken no survival gear at all—no blankets, no food, no tent, not even a flashlight.

Through a long, bitterly cold night he huddled beside his wife, not daring to sleep himself lest he wake up and find that she had stopped breathing. Periodically he went outside and stamped furiously in the snow to restore his circulation. In the morning he found a mirror in his wife's purse and went up on the ridge to try signalling.

But the same overcast was there, letting in very little sun, and no planes flew over. He realized guiltily that in the absence of a flight plan it could be days before anyone searched for them, and then no one could be sure of the route. He was torn between an impulse to set off to find help, and the fear of whether his wife would survive if left alone; he decided finally he would not go farther than the ridge. A second, dreaded, night was approaching when he heard the Air Force helicopter reverberating across the valley, and he found himself screaming "Here! Here!" at the top of his lungs.

As the forest men said, the wilderness gives "rewards and penalties for wise and foolish acts"—and survival owes more to human ingenuity (called ITAP in this case) than to the favors of lady luck.

(Editor's note: accidents described in this magazine are based on investigations conducted by the National Transportation Safety Board. Some details are altered to protect privacy.)

SCORING HIGH

Preparing for the next rating or airman certificate

Following is an updated listing of current FAA Written Test Guides, Flight Test Guides, and Practical Test Guides for various airmen certificates and ratings. All are designed to aid the applicant in preparing for the appropriate test. Guides are designated as "advisory circulars" and sold by the U.S. Government Printing Office. They may be ordered in person or by mail from the main office (Superintendent of Documents, GPO, Washington, D. C. 20402), or from the regional outlets listed in the January 1978 issue of this magazine. For speediest mail handling use a GPO order form or facsimile, print all requested information, follow instructions carefully and enclose check or money order (do not send cash). Allow three to six weeks for delivery.

Title	AC Number	Stock Number	Price
Private Pilot (Airplane) Written Test Guide	(AC 61-32B)	050-011-00073-9	2.30
Commercial Pilot (Airplane) Written Test Guide	(AC 61-71A)	050-007-00385-4	2.30
Airline Transport Pilot (Airplane) Written Test Guide	(AC 61-18D)	050-007-00301-3	2.05
Instrument Rating (Airplane) Written Test Guide	(AC 61-8C)	050-007-00183-5	1.45
Private and Commercial Pilot (Glider) Written Test Guide	(AC 61-81)	050-007-00339-1	1.00
Private and Commercial Pilot (Rotorcraft—Helicopter) Written Test Guide	(AC 61-73)	050-007-00265-3	1.20
Airline Transport Pilot (Helicopter) Written Test Guide	(AC 61-42A)	050-011-00057-7	.70
Flight Instructor (Airplane) Written Test Guide	(AC 61-72A)	050-007-00386-2	2.70
Flight Instructor Instrument (Airplane) Written Test Guide	(AC 61-70)	050-007-00252-1	1.65
Ground Instructor—Basic and Advanced—Written Test Guide	(AC 143-1E)	050-007-00382-0	2.00
Ground Instructor—Instrument—Written Test Guide	(AC 143-2C)	050-007-00376-5	1.40
Flight Instructor (Glider) Written Test Guide	(AC 61-75)	050-007-00271-8	1.50
Flight Instructor (Rotorcraft—Helicopter) Written Test Guide	(AC 61-74A)	050-007-00272-6	2.30
Flight Instructor Instrument (Rotorcraft—Helicopter) Written Test Guide	(AC 61-85)	050-007-00403-6	2.40
Private Pilot (Airplane) Flight Test Guide	(AC 61-54A)	050-007-00300-5	1.35
Commercial Pilot (Airplane) Flight Test Guide	(AC 61-55A)	050-007-00295-5	1.10
Airline Transport Pilot (Airplane) Practical Test Guide	(AC 61-77)	050-007-00257-2	.50
Type Rating (Airplane) Flight Test Guide	(AC 61-57A)	050-007-00299-8	.70
Instrument Pilot (Airplane) Flight Test Guide	(AC 61-56A)	050-007-00343-9	.55
Flight Instructor Practical Test Guide	(AC 61-58)	050-011-00067-4	.50
Private and Commercial Pilot (Glider) Flight Test Guide	(AC 61-61A)	050-011-00071-2	1.50
Private and Commercial Pilot (Free Balloon) Flight Test Guide	(AC 61-62A)	050-007-00375-7	1.10
Private and Commercial Pilot (Helicopter) Flight Test Guide	(AC 61-59A)	050-007-00384-6	1.60
Private and Commercial Pilot (Gyroplane) Flight Test Guide	(AC 61-60)	050-011-00066-6	.65
Airline Transport Pilot (Helicopter) Flight Test Guide	(AC 61-82)	050-007-00358-7	.80
Instrument Pilot (Helicopter) Flight Test Guide	(AC 61-64)	050-007-00215-7	.55

Famous
FLYERS

LINCOLN ELLSWORTH and the POLAR STAR

First use of aircraft to claim new territories for the U. S.

The explorer and his airplane camped on the seemingly endless polar ice.

The boyhood of Lincoln Ellsworth did nothing to foreshadow the man he was to become: a world-renown explorer and polar pilot who would raise the American flag over the last unclaimed land on earth—some 350,000 square miles of Antarctica. This heroic figure who eventually traversed uncharted polar wastelands by dogsled, on skis and snowshoes, in a submarine and dirigible as well as by aircraft, began life as a timid, solitary youth with no friends, no interests or skills, and a dismal scholastic record.

An overly protected rich man's only son, Lincoln was born in Chicago on May 12, 1880. His original name was Linn, after a favored relative, but according to his autobiography ". . . *about the time I could write fluently enough to take an interest in my signature, I began—for what reason I have forgotten—signing myself Lincoln Ellsworth, and eventually gained that name by common consent.*"

He was an eighth generation American, and his ancestors included a great grandfather (Oliver Ellsworth, 1745-1807) who had been Chief Justice of the United States Supreme Court. Lincoln's father James Ellsworth, had risen from obscurity to a position of great wealth and power, as President of Chicago's Union National Bank and Director of the Baltimore and Ohio Railroad.

Lincoln's father also had interests in coal mines in Pennsylvania, and developed what became one of the largest exporting operations in the country, shipping coal to France, Germany and Italy. His interest in developing coal by-products introduced a new phase to mining and the coal town of Ellsworth, near Pittsburgh, was named for him.

A cultured and dynamic individual with many varied interests, his home was decorated with famous paintings, including an original Rembrandt, and visited by such leading artists of the day as the great pianist Ignace Paderewski. He also owned residences in Italy and Switzerland, and kept a penthouse on Park Avenue in New York. All in all, a hard act to follow.

A pale and lonely lad, afraid of most school activities, his son Lincoln participated only in individual sports in high school, like runnng the long distance races. He won four gold medals for public speaking, but these were his only scholastic accomplishments from kindergarten through college. He was a wandering student attending such colleges at Columbia, Yale, Kenyon, McGill University and the London School of Mines. He was always a poor scholar with deplorable marks, unable to determine what he wanted to do or to be.

At the age of twenty-two he worked with the survey group on the transcontinental route of the Canadian National Railway. He also worked for a time in his father's mine, and later for the U.S. Biological Survey in the Rockies. Here he had discovered a fascination with open space, desert lands, and particularly in traveling where few people had been. Studying a globe of the world, he became interested in the uncharted areas of both the Arctic and the Antarctic. On a busman's holiday, he backpacked through a great area of the South American Andes, where often he could look for hundreds of miles and see no one. City-born, he discovered his real interests far from home, and he found that he liked himself best when he was entirely on his own.

This self-discovery period, from 1909 to 1915, happened to be an era of great international interest in polar exploration, with Peary and Cook at the North Pole, Scott at the South Pole, and Wilkins, Byrd and Amundsen traveling to both. Reading about these explorations, talking with the men involved .who were occasional guests at his father's home), studying maps and detailed reports at various museums—all this convinced Ellsworth there was a purpose to his life—exploring the polar wastes.

His father was adamantly opposed, and tried his best to dissuade Lincoln from these ventures, but his son insisted that the polar regions ". . . offered the last great field for heroic enterprises in the service of science and humanity." At long last his course was set. A short military service as a combat observer and later as a pilot during World War I only strengthened his conviction that *aviation was the key to modern exploring.*

In 1924 a geological exploration was dispatched by John Hopkins University to study the rock formations in the Peruvian Andes—the party surveyed the trans-Andean mountains from the headwaters of the Amazon to the Pacific shores of Peru, traveling on foot, horse and by boat and airplane. Financial backing was supplied, however reluctantly, by James Ellsworth. The leader was his son, Lincoln, now aged 44, a professional explorer at last.

A year later, again with grudging support from his father, Ellsworth made his first polar journey, attempting to fly over the North Pole with the famed Norwegian Roald Amundsen. Flying north from Spitzbergen in two Dornier-Wal (Italian) flying boats, they crash-landed on an ice floe at

latitute 87°44′ N. Unreported for over a month, they managed to repair one airplane and struggle back to their base, where Lincoln learned of his father's death.

His appetite for the Arctic barely whetted, and now financially able to finance his own expeditions, Ellsworth made a flight over the North Pole in 1926 in the Italian dirigible, *Norge*, continuing all the way to Teller, Alaska, a total distance of 3,400 miles. For the next five years he explored little-known areas of the Arctic by air and overland. In 1931 he paddled a canoe hundreds of miles over the wild interior of Labrador.

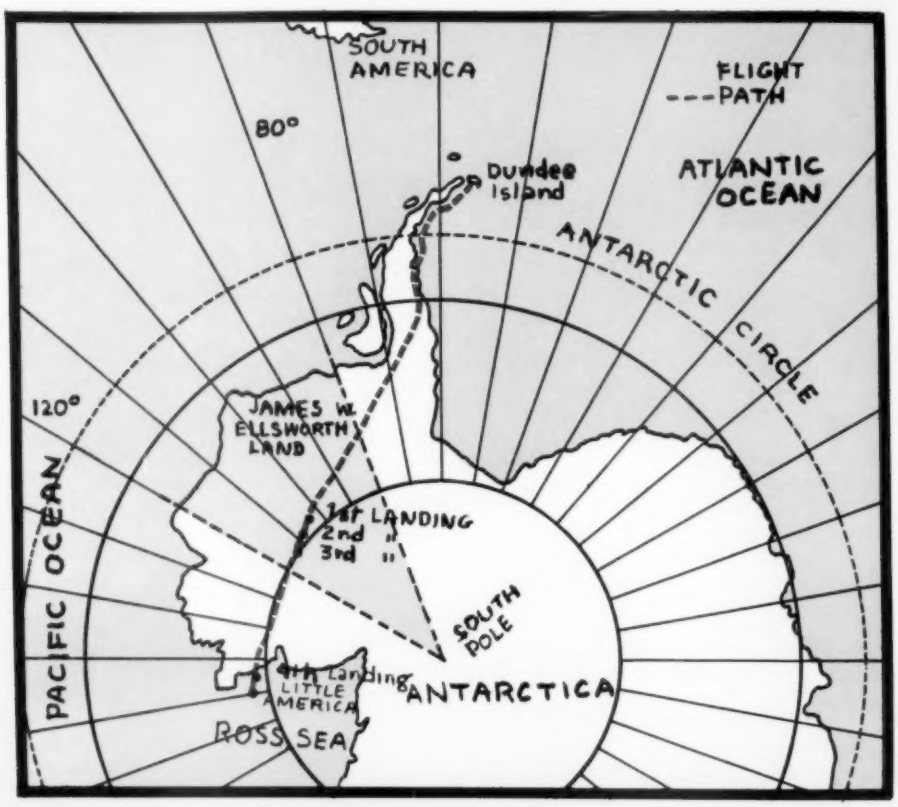
Now a seasoned explorer, Ellsworth began preparations for an assault on the Antarctic, the last unknown portion of the globe. A base ship, which he called the *Wyatt Earp* (after one of his boyhood heroes) was acquired—a 135 foot, 400 ton coastal freighter built in Norway. The Diesel-driven craft could only manage about eight knots, but had an immense cruising range (about 12,000 miles). Lincoln had her oak planking sheathed with steel below the waterline.

During this preparatory period, Ellsworth made a trip to Switzerland to look over property he had inherited, and while in Zurich met a liberated young woman named Marie Louise Ulmer, who was taking flying lessons. They were married and traveled to New Zealand aboard the *Wyatt Earp* in May of 1933. At the close of the year Lincoln, now 53, left his bride at home, while he took charge of the Antarctic expedition.

Antarctic is a continent, somewhat larger than Europe, which roughly comprises all the area within the Antarctic Circle. At this time nothing was known of a huge, pie-shaped area extending from the Pole between longitude 80 and 120°W. Was it an ice-covered sea, or was it a continuous land mass? Lincoln's plan was to fly from the Antarctic Archipelago which lies across the Antarctic Circle near longitude 60W., to the "Little America" camp established by Richard Byrd three years earlier, a distance of about 2,300 miles. The camp is located on an ice shelf of the Ross Sea. The flight would begin with a southwesterly heading and end with a northwesterly heading—never approaching the Pole itself.

The aircraft Ellsworth brought along on board the *Wyatt Earp* was a metal-skinned, low-wing, ski-equipped monoplane built by Northrop and named the *Polar Star*. The wingspan was 48′, overall length 31′ and empty weight 3,614 lbs. With a 600 hp Wasp engine and a fuel capacity of 2,800 lbs., the *Polar Star* had a range of 5,000 miles and a topspeed of 230 mph. Cargo included a sledge, tent, a scant two week's supply of food, primus stove, photographic supplies, snowshoes, a snow knife and shovel, and a radio and portable generator.

The *Polar Star's* chief pilot was Herbert Hollick-Kenyon, an experienced Canadian Arctic flyer, described by Ellsworth as ". . . a fine felow, a grand pilot, and the quietest man I ever knew."



On the morning of November 22, 1935, Ellsworth and Hollick-Kenyon took off from Dundee Island for the trans-Antarctic flight they expected to last 16 hours. Fine weather prevailed during the early hours of their flight, as they were treated to some of the most spectacular scenery ever glimpsed by the human eye, including the "backbone" of the Antarctic continent, with peaks over 13,000′. Ellsworth claimed some 350,000 square miles of uncharted land for the United States and named it for his father, "James W. Ellsworth Land." He took many aerial photographs and geographical notes, which later enabled the National Geographic Society to map half a million miles of previously undiscovered land. After flying for nearly 14 hours, the pair encountered increasing clouds and poor visibility. To avoid getting off course, they decided to land on the ice and establish precise bearings.

They came down without incident on an elevated plateau, over a mile higher than sea level, which appeared to extend endlessly in all directions. At latitude 78° 12′S. and longitude 104°10′W., they calculated they were several thousand miles from any other human being. At this latitude and time the sun never sets; the temperature was minus 15° and the "terrible expanse of endless white was unnerving." The two explorers set up their tent and tried to establish radio contact with the ship, but were unsuccessful, for reasons which were undetermined but persisted. Soon they were being pummeled by a fierce blizzard which lasted for *eight days*, while they were confined in a space scarcely large enough to turn around in, their hands and faces coated with grease and dirt and soot from the stove.

On the ninth day the storm abated and they began the wearisome task of digging out the airplane. So much fine snow had sifted into the fuselage that it took Ellsworth an entire day to clear it out, while his companion shoveled snow from the wings and struggled with the engine. They were 630 miles from their destination, Little America.

After two days they managed to get the *Polar Star* airborne again and on course for Little America, flying through continuous dense fog. Their fuel gave out before the settlement came in sight, and once again they landed the *Polar Star* on a vast desert of ice. Calculating that their destination could only be a few miles away, they loaded a few supplies and their tent on the sledge and set out on foot, using snowshoes for traction on the ice to drag the sledge. They hated to leave the airplane, which had taken them so many miles and functioned perfectly, but secured it as best they could in hopes of recovering it later.

The ice fog persisted, making it necessary to travel entirely by compass and to estimate distance by guesswork. Several times they caught sight of an apparent building up ahead, only to find, as they approached, that it was merely an ice boulder standing on end. Ellsworth suffered from a badly frost-

bitten foot, and ten miles a day was all they could manage. After a week of exhausting travail they came up on a ridge overlooking the Ice Barrier at the head of the Bay of Whales: nearby was the cluster of antennas sticking out of the snow known as Little America.

The camp was un-manned and the houses buried in snow, but for the weary pair who had been traveling for three weeks, and were incredibly caked with grime, it was a luxury hotel, snug and protected beneath the surface of the snow-covered ice. They found coal, oil, and food—canned, frozen and dried—bunks and blankets, and even tobacco and magazines. The radio was inoperative, but Ellsworth and his companion luxuriated in the "civilized" comforts at hand and patiently awaited contact from the outside world.

On January 15, nearly eight weeks since their departure from Deception Island, they heard an aircraft engine roar overhead and climbed up on top of a house in time to see a parcel parachuting down through the still-present fog. It contained chocolate, raisins and orange juice—which they devoured so fast it made them ill—and a note from one Captain Hill of the Royal (Australian) Research Ship *Discovery II*. The vessel, with two aircraft aboard, had been dispatched by the Australian Government as part of a relief expedition ten days after radio failure had severed connections between the polar explorers and the outside world.

Ellsworth, whose frostbitten foot had become painfully infected, limped to the camp edge in time to see what appeared to be an army of men marching toward them—in reality, a six-man relief party sent ashore by Captain Hill—whose numbers were magnified by the distortion effect of the fog. Five days later his own *Wyatt Earp* steamed into the bay, completing a 5,100 mile voyage from Dundee Island, and Ellsworth was reunited with the comrades he had worked with during three years of Antarctic exploration. The *Polar Star* was retrieved, loaded on board, and the adventurers set sail home.

On his return to the United States Ellsworth, who had been given up for dead, received a special gold medal from Congress and world-wide acclaim. Even more important than his mapping of unknown lands, his territorial claims, and his visual confirmation than the Antarctic was a single continuous continent, was his proof that the aircraft was the premier vehicle of transportation for polar exploration. His *Polar Star* was flown by Hollick-Kenyon to the Smithsonian Museum in Washington, D.C., where it remains on exhibit as one of the famous milestones in aviation.

Ellsworth continued his explorations of the Antarctic by air until 1939, his enthusiasm undimmed by time or infirmity. "Good fortune," he wrote, "has permitted me to play a part in the unveiling of a continent for the last time in human history."

National Geographic Society photos

BRIEFS

USE IT OR LOSE IT. Spokesman for one of the major aircraft radio manufacturers is advising pilots that turning off aircraft radios in flight does not prolong their lifespan. The manufacturer believes that avionic equipment will actually last longer if it is kept running whenever the airplane engine is running, and estimates that a regularly-used radio may last three times as long as one used only rarely. Other factors that contribute to a long life for radio equipment include proper installation, particularly proper grounding and adequate cooling. Lack of the latter is considered the greatest single contributer to aircraft radio problems (and in many cases could void the warranty of new radios).

FAA AIRPORT OFFICES. Persons who may have a need for addresses or phone numbers of FAA Regional Airports Divisions or FAA Airports District/Field Offices should write for the updated listing of such offices. Publication also includes maps showing boundaries of areas covered by various offices. Ask for "Address List for Regional Airports Divisions and Airports District/Field Offices" (AC 150/5000-3D).

AI LIST UPDATED. The Directory of FAA-certificated mechanics who hold Inspection Authorization is now available in an updated form. The 125-page book includes all current AI's, listed according to state, plus a separate section for those operating in foreign countries. The book, "FAA Inspection Authorization Directory" (AC 65-13C) is free.

TRANSPONDERS—WHO NEEDS THEM? is one of the questions answered in a new FAA advisory circular, AC 91-50 which reviews the regulations that pertain to use and servicing of transponders. Currently, 4096-code transponders and altitude encoders are needed to fly in Group I Terminal Control Areas (TCAs) or above 12,500 feet MSL (except in high mountainous areas, in which cases they are not required below 2,500 feet AGL). To fly in a Group II TCA pilots need 4096-code transponders but not altitude reporting capability. Copies of "Importance of Transponder Operation and Altitude Reporting" (AC 91-50) are free.

CHECKING THE DIPSTICK ANGLE. Avco Lycoming is reminding pilots flying the new model (172N) of the Cessna Sky-Hawk to note that the dipstick on these aircraft must be installed in a vertical position, rather than at an approximately 45 degree angle, as was the case with earlier models of the same aircraft. The new model uses a newly designed engine which has the oil access door on the top of the cowl, near the centerline of the powerplant. If the pilot forces the dipstick to go in at an angle, it can be chewed up by the crankshaft when the engine is running, distributing pieces of metal in the oil system.

Advisory circulars mentioned are available free from DOT/FAA Distribution Unit, TAD 443.1, Washington, D.C. 20590.

Seven-Volume Airport Directory Replaces AIM 2 and 3

Information which has been appearing in Parts 2 and 3 of the Airman's Information Manual (AIM) will now be published as a combined directory in seven separate regional volumes. All open-to-the-public airports will be listed, with information on runways, lighting, available fuel and service, frequencies etc. (Map shows regions.)

First of the new regional directories, covering the southeastern states, was published in December 1977. The complete series is scheduled to be published by May 1978. Volumes will be updated every 56 days. (Present AIM revision cycle is 56 days for Part 3; six months for Part 2.)

The new Directory can be purchased by *subscription* to individual volumes (at $10 per year for the first region; $7.50 for the second; and $5.00 for each additional region) or to the entire seven-volume set ($37.50 per year). *Single copies* are priced at $2.00 per volume. Order by sending check to National Ocean Survey, C-44, Department of Commerce, Riverdale, Md. 20840. Directories are also expected to be available for single copy over-the-counter sale at some chart outlets such as airports, fixed base operators, flight schools, etc. (NOTE: Publication of AIM Parts 2 and 3 will continue for about one more year, to accommodate present subscribers.)

In addition to being handier in size and easier to use than the previous format, the new directory will also result in a dollar saving for many pilots, who can subscribe to volumes for only those areas where they generally fly, adding single volumes to accommodate the occasional cross-country flight to another region.

Commuters Growing Fast

Commuter airlines, according to the latest FAA forecast, will experience the highest growth rate of all domestic aviation over the next 12 years, with the number of passengers growing at an annual rate of 7.5 percent, from 6.5 million in 1977 to 14.5 million in 1989. Revenue passenger miles for commuters will reach 1.9 billion—almost tripling—and operations will double, reaching 4.9 million.

The overall general aviation fleet of aircraft is expected to increase by 65 percent over this period, bringing the total to 291,000. Hours flown annually will exceed 60 million, compared to about 36 million today, and the number of general aviation pilots will jump from 740,000 to 1,120,000.

Copies of "FAA Aviation Forecasts—Fiscal Years 1978-1989" (ADA 047657) are $6.00 from National Technical Information Service, 5285 Port Royal Rd., Springfield, Va. 22151.

Robot Weatherman Tested

Pilots flying in the lower Chesapeake Bay area of Virginia are asked to use and comment on a new automated weather observation system being tested throughout April of this year. The test, originally slated to begin in November of 1977, will determine whether better local weather data may be provided in this manner.

The Aviation Automated Weather Observation System (AV-AWOS) uses sensors to measure cloud height, visibility, temperature, dew point, wind speed and direction, precipitation and barometric pressure. The data is used on sequence reports and is also transformed into a digitized voice message, which is broadcast over the Harcum VOR (108.8).

Pilot comments should be passed on to Newport News Flight Service Station.

Wind Shear Warnings

A new surface-wind monitoring system, designed to detect low level wind shear caused by thunderstorms and fast moving weather fronts, is now operating at six trial locations in the United States: *Tampa* International; *Oklahoma City* Will Rogers; *Houston* Intercontinental; *Denver* Stapleton, *Atlanta* Hartsfield and *New York* Kennedy. Additionally, the system will soon be installed at *Boston* Logan Airport, to begin a test operation in mid-summer.

The system uses a mini-computer to compare measurements of wind speed and direction obtained by sensors located in the runway approach corridors with wind data obtained near the airport center. When a significant difference in wind velocity is detected, an aural and visual alarm is triggered in the airport control tower to alert controllers, who will then inform pilots.

SURF UP, PLANE DOWN. Buzzing surfers is a hazardous sport, as a pilot in Hawaii discovered recently when his airplane was dented by a surfboard, which popped into the air as it was abandoned by a frightened surfer. FAA suspended pilot's certificate for 90 days, under FAR 91, which prohibits low-level flying over persons in the water.

• Balloon BFR

I have some questions about taking a biennial flight review (BFR) in a balloon. Who can give a BFR to a balloon-only pilot? Must the giver of the BFR fly with (in the aircraft) the getter of the BFR?

Also, FAR 61.57 says a BFR should be given by an appropriately certificated instructor or "other person designated by the Administrator." I would like to know how the "other designated persons" are so designated?

The FAA General Aviation News is getting more excellent all the time. Congrats.

Fred Porter
Anchorage, Alaska

A Commercial Pilot with Balloon Rating can give a biennial flight review to a balloon pilot. The "giver" must fly in the balloon with the pilot receiving the BFR, unless it is a single-place balloon, in which case the former observes from the ground.

At the present time virtually all biennial flight reviews are administered by certificated flight instructors. The phrase "other person designated" was included in the rule to allow flexibility for just such situations as that above. (There is no balloon instructor's rating.)

• The Quick Change Artist

In the October 1977 issue your "Famous Flights" article "Ole Miss" (the 27-day Non-Stop Marathon Over Meridian) it is reported that the aircraft "was in flight at the time, about 1,000 feet over the ground with the engine going full blast, . . ." etc. The unique part of this report was that ". . . a young pilot named Fred Key was observed changing spark plugs on the Whirlwind engine of his Curtiss Robin . . ." Please tell us the procedure used for such a remarkable spark plug change.

Norman D. Morehouse
Lakewood, Calif.

Fred Key never did disclose his technique for replacing a sparkplug in flight, although an account of his having done so was published in a local newspaper. Presumably his brother in the cockpit shut off the ignition switch long enough for Fred to make the change, but he must have had very quick hands. There was, of course, as noted in the article, a special platform built up around the engine for him to work on it aloft, but it was never easy.

• Fuel-Injected-Engine Ice

As an avid reader of your publication I must compliment you on the October issue. It had a fine choice of articles, every one interesting. I particularly like the one entitled "Keepers of the Flame" because it dealt with a very timely subject. However, one important point was omitted, and that is aircraft equipped with fuel injected engines are also susceptible to engine icing.

H. Santa Anna
Fort Worth, Tex.

It is true that fuel injected engines can be effected by ice. For this reason, Lycoming in its "Flyer" has swapped the term "carburetor ice" for "induction icing" stating: "In the case of fuel injection it is the IFR type flight condition which generally causes induction system icing. The fuel injected engine does not have the threat of icing at the venturi, but other parts of the induction system can gather ice, such as bends in the system, the impact tubes, or the air filter."

• Anti-collision Lights

I would like to bounce the following off your thinking: FAR 91.73, "Aircraft Lights" requires that position lights be lighted during the period from sunset to sunrise. FAR 91.33(c) Visual Flight Rules (Night) requires an approved . . . anti-collision light system. I can find no place in the regulation that specifies what part of the day the anti-collision light system must be in operation. I would assume that a pilot flying an aircraft equipped with an approved, functional anti-collision light system could fly at night without the system being "in operation" and he would not be in violation.

James R. Harper
Reedley, Calif.

Because rotating anti-collision lights can be distracting—even hazardous—in hazy or IFR conditions, the FARs do not require their use at any specific time. The intent is to allow a pilot flexibility in using them. Except when in clouds and haze, we suggest using anti-collision lights any time the engine(s) are running, day or night.

• Low Cost Airstrip Marking

On your September news page you told of projects that were discussed at the FAA General Aviation R & D Conference held recently. We live on a private airstrip and are particularly interested in the program on low-cost marking and lighting for use on small sod airstrips, including the "approach fish"—the modified wind sock which you pictured with the article. How can we get a copy of this report?

Walter Kessler
Marengo, Ill.

The "Low-Cost Lighting and Marking for Small Sod Airstrips" project, is being completed and a final report will be available soon, at which time we will publish directions for obtaining it. (The name of the project, incidentally, has been changed, with the word "unpaved" replacing 'sod' so that it encompasses strips in areas where grass does not readily grow.)

The wind indicator in question was developed by a private firm, "Approach Fish, Inc." Rt. 1, Box 620B, Ringgold, Va. 24586, phone (804) 799-0389.

FAA GENERAL AVIATION NEWS welcomes comments from our readers. No anonymous letters will be used, but names will be withheld on request. Address: FAA GENERAL AVIATION NEWS, AFS-807, Washington, D.C. 20591.

• Promises, Promises

After all your promises about getting the magazine back on schedule after January 1, here it is mid-January and no sign of the January issue. I don't call that much of an improvement. What's the problem? Is the government using some kind of stretchable calendars?

D. Byers
Leesburg, Va.

The magazine is produced on a regular 30 day cycle within FAA. Recent delays in printing and distribution are due to failures on the part of the printer to adhere to the schedule. The printing is done by a private contractor on contract with the U.S. Government Printing Office. GPO is doing everything within reason to bring about compliance with the contract. The January issue was printed on January 5, and should have been in every subscriber's hand by the third week in January.

• The Non-Pressurized Beech

A photo caption on page five of your October issue inferred that the Beech 99 is a pressurized aircraft, which it is not. Please correct.

Basil G. Maile, AOPA
Washington, D.C.

The Beech 99 is not pressurized.

INSTRUMENT CORNER

• Requirements for Additional Instrument Ratings

We operate a fixed wing and helicopter flight school. Among other ratings, we give instrument ratings in helicopters to pilots who hold commercial helicopter certificates and are instrument rated on fixed wing airplanes. FAR 61.65(e)(1) requires 50 hours of cross-country time as pilot in command in the category of aircraft for which an instrument rating is sought. Does this requirement also apply for an *additional* instrument rating?

If this 50 hours is required, we feel it should not be. We are training highly qualified commercial and ATP fixed wing pilots who are very competent in instrument flying and they should not be required to get these extra hours just so they can get an instrument rating after the additional category rating is obtained.

Kenneth E. Wymer
AgRotors, Inc.
Gettysburg, Pa.

The regulations presently do call for the 50 hours of pilot-in-command cross-country time in the category of aircraft, for an additional instrument rating. This is one of the subjects that will be covered in an upcoming regulatory review of FAR Part 61, so watch for announcements and be sure to make your views known when prosposals and comments are requested from the public.

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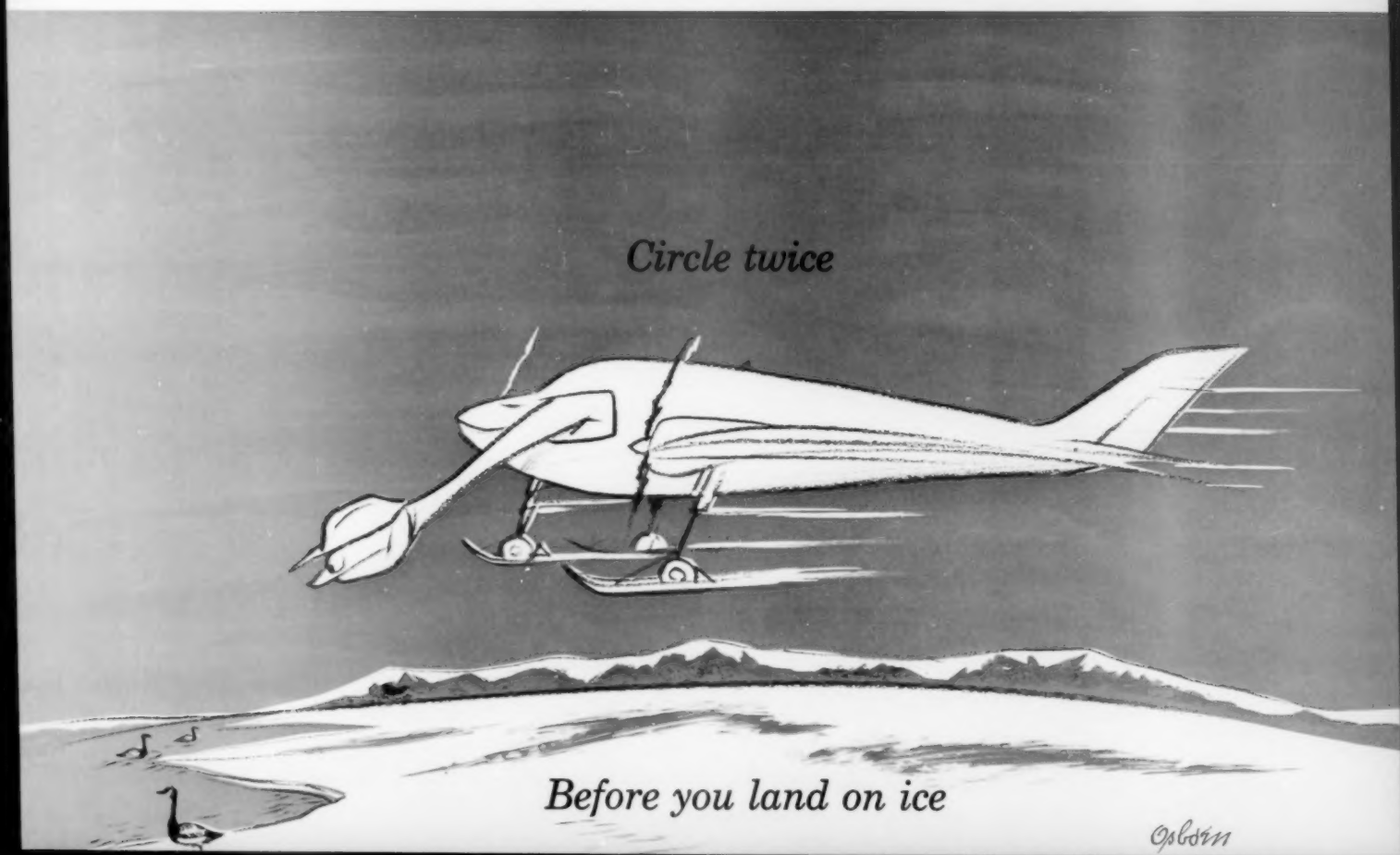
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